CITY OF HAILEY (PWS 5070022)
SOURCE WATER ASSESSMENT FINAL REPORT

December 1, 2000

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment for the City of Hailey, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The City of Hailey drinking water system consists of six wells and a spring. Though the wells had high ratings in hydrologic sensitivity and moderate ratings for system construction, a lack of potential contaminant sources and the quality of the water delivered throughout the years kept the total well ratings at moderate susceptibility to volatile organic contamination, synthetic organic contamination, inorganic contamination, and microbial contamination in most cases. In July 1998, the River St. Well water had a detection of the synthetic organic contaminant Di(2-ethylhexyl)phthalate, however, two retests showed no detects. The City of Hailey maintains ongoing monitoring. In October 1994, the Indian Springs source water had a detection of the volatile organic contaminant Tetrachlorethylene. In August 1987, the Woodside Well water exceeded the Maximum Contaminant Level for Chromium. Except for these occurrences, water chemistry tests have not detected volatile organic contaminants or synthetic organic contaminants in the well water. The inorganic contaminants barium, fluoride, nitrate, manganese, zinc, chromium, and mercury have been detected in the well water, but at levels below the Maximum Contaminant Levels for drinking water. Actual test results are available at both Hailey City Hall and the Department of Environmental Quality, Twin Falls Regional Office. The system has a chlorine disinfection system that has prevented microbial contamination from affecting the drinking water.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the City of Hailey, source water protection activities should focus on sustaining and implementing practices aimed at wellhead protection. Issues raised in the recent 1999 Drinking Water Supply Report have been addressed. Keeping the wellhead and surface seal up to standards will keep the susceptibility ratings in the moderate category. Other practices aimed at reducing the movement of contaminants within the designated source water areas should be investigated. Any accidental spills in the Big Wood River or from Highway 75 should be closely monitored. The City of Hailey has an emergency response plan; it has monitored past spills and that effort should continue. Disinfection practices should be maintained to prevent microbial contamination from becoming a concern. Most of the designated areas are outside the direct jurisdiction of the City of Hailey. Partnerships with state and local agencies and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, source water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Twin Falls Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR THE CITY OF HAILEY, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment is also attached.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Wellhead or source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The City of Hailey has six wells and one spring that make up a community system serving approximately 6,500 people through 2,450 connections. The City of Hailey is located in Blaine County, about 1 mile south of the confluence of Indian Creek with the Big Wood River (Figure 1). The public drinking water wells and spring are located in and around the city.

There are no current, long term, recurring water chemistry problems in the drinking water sources. However, some of the sources have detected potential chemical problems during routine sampling. In July 1998, the River St. Well water had a detection of the synthetic organic contaminant (SOC) Di(2-ethylhexyl)phthalate. In October 1994, the Indian Springs source water had a detection of the volatile organic contaminant (VOC) Tetrachlorethylene. In August 1987, the Woodside Well water exceeded the Maximum Contaminant Level (MCL) for the inorganic contaminant (IOC) Chromium. The City of Hailey maintains ongoing monitoring. Except for these occurrences, water chemistry tests have not detected volatile organic contaminants or synthetic organic contaminants in the well water. The IOCs barium, fluoride, nitrate, manganese, zinc, chromium, and mercury have been detected in the well water, but at levels below the MCLs for drinking water. The system has a chlorine disinfection system that has prevented microbial contamination from affecting the drinking water. Though no significant IOC, VOC, SOC, or microbial water chemistry problems currently exist, the possibility of contamination from nearby potential contaminant sources remains. Actual monitoring results are available at Hailey City Hall and Department of Environmental Quality, Twin Falls Regional Office.

Defining the Zones of Contribution--Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time of travel zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. DEQ used a refined computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) time of travel for water associated with the Big Wood River aquifer in the vicinity of the City of Hailey. The computer model used site specific data, assimilated by DEQ from a variety of sources including the City of Hailey well logs, local area well logs, and various reports (Castelin and Winner, 1975; Frenzel, 1989). The delineations for the ground water wells can best be described as corridors traveling up (northwest) the Big Wood River valley about 3 ½ miles and into the adjoining creek valleys. The Indian Springs delineation covers the entire watershed of the area. The actual data used by DEQ in determining the source water assessment delineation area is available upon request.

Identifying Potential Sources of Contamination

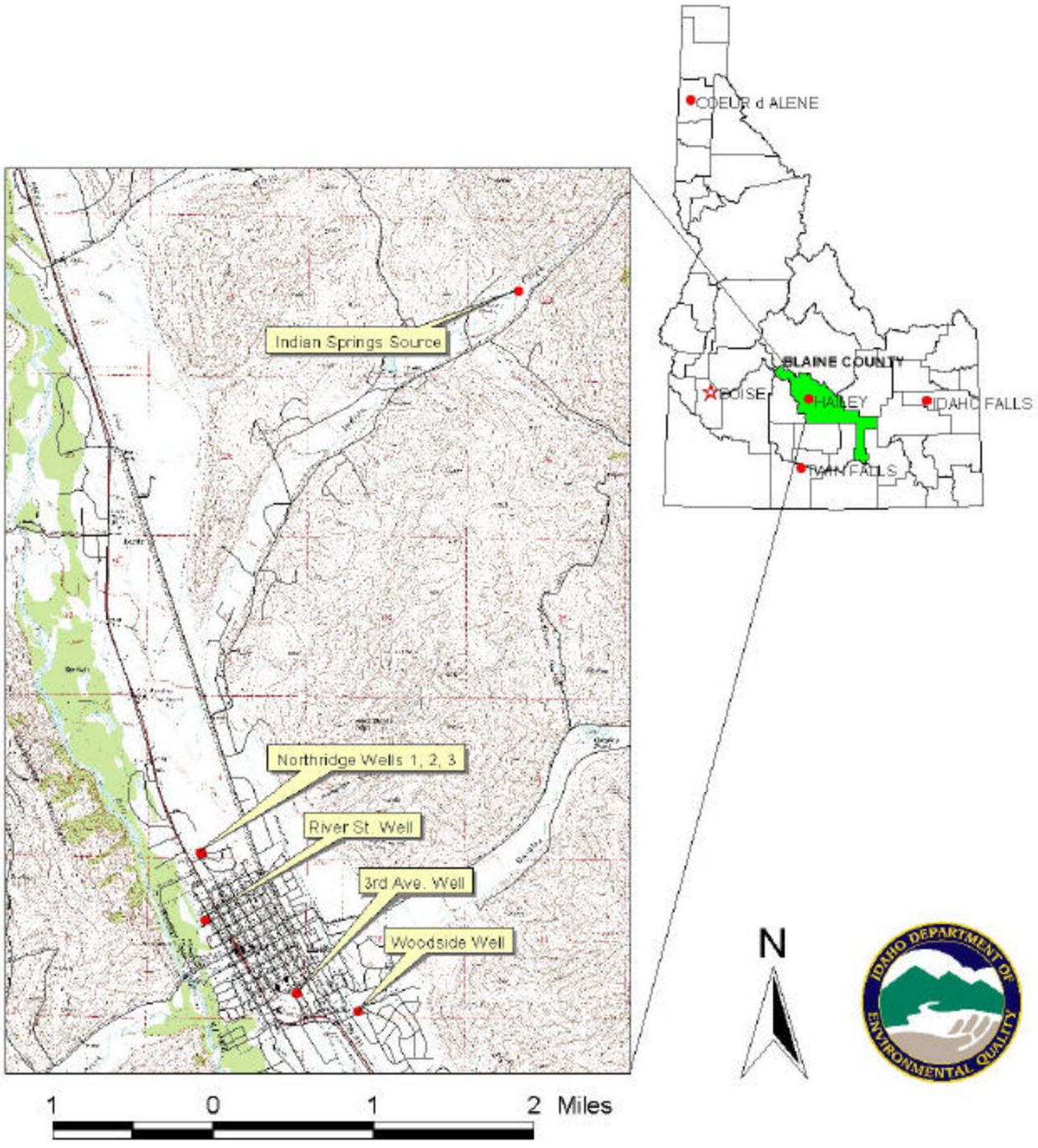
A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water contamination. The locations of potential sources of

contamination within the delineation areas were obtained by field surveys conducted by DEQ, from available databases, and verified by the City of Hailey.

The dominant land use outside the City of Hailey is undeveloped land, agricultural land, and residential land uses. Land use within the immediate area of the ground water wells consists of urban, industrial, business, residential, and governmental uses. The land use in the area of Indian Springs is woodlands, rangeland grazing, and inactive mining operations.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination. These involve educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well or zone of contribution.

Figure 1. Geographic Location of the City of Hailey Wells



Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted during the spring and summer of 2000. The first phase involved identifying and documenting potential contaminant sources within the City of Hailey Source Water Assessment Area through the use of computer databases and Geographic Information System maps developed by DEQ. The second or enhanced phase of the contaminant inventory involved contacting the city operator to validate the sources identified in phase one and to add any additional potential sources in the area. This task was undertaken with the assistance of Bob Schulz of the City of Hailey, John Bokor of Idaho Rural Water Association, and the Department of Environmental Quality.

Since the delineated source water areas encompass various portions of the Hailey area, the different wells have different numbers and types of potential contaminant sources. The River St. Well and the Northridge Wells have 12 potential contaminant sources (see Table 1). The Woodside Well has 5 potential contaminant sources (see Table 2). The 3rd Avenue Well has 5 potential contaminant sources (see Table 3). The Indian Springs source has 2 potential contaminant sites (see Table 4). The sources include a number of mines, government facilities, hair salons, general businesses, a hospital, businesses having underground storage tanks (USTs), and sites with completed and incompleted leaking underground storage tank (LUST) cleanups. Additionally, there is a site regulated under the Resource Conservation Recovery Act (RICRIS). Finally, the Big Wood River and Highway 75 could be potential sources of contamination from an accidental spill. The locations of these various potential contaminant sites relative to the wells are shown (Figures 2, 3, 4).

Table 1. City of Hailey River St. and Northridge Wells, Potential Contaminant Inventory

SITE #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
R-1	UST	0-3	Database Search	VOC, SOC
R-2	Manufacturer	0-3	Database Search	VOC
R-3	General Contractor	0-3	Database Search	VOC, SOC
R-4	Boat Dealer	0-3	Database Search	VOC, SOC
R-5	Hospital	0-3	Database Search	IOC
R-6	RCRIS	0-3	Database Search	IOC
R-7	UST	0-3	Enhanced Inventory	VOC, SOC
R-8	UST	0-3	Enhanced Inventory	VOC, SOC
R-9	Hair Treatment	0-3	Enhanced Inventory	IOC, VOC
R-10	Hair Treatment	0-3	Enhanced Inventory	IOC, VOC
R-11	Highway 75	0-10	Database Search	IOC, VOC, SOC, Microbes
R-12	Photographer-Commercial	6-10	Database Search	IOC, VOC

[1] UST = underground storage tank
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Figure 2. City of Hailey Delineations for Woodside Well, River St. Well, 3rd Ave. Well, and Northridge Wells 1, 2, 3

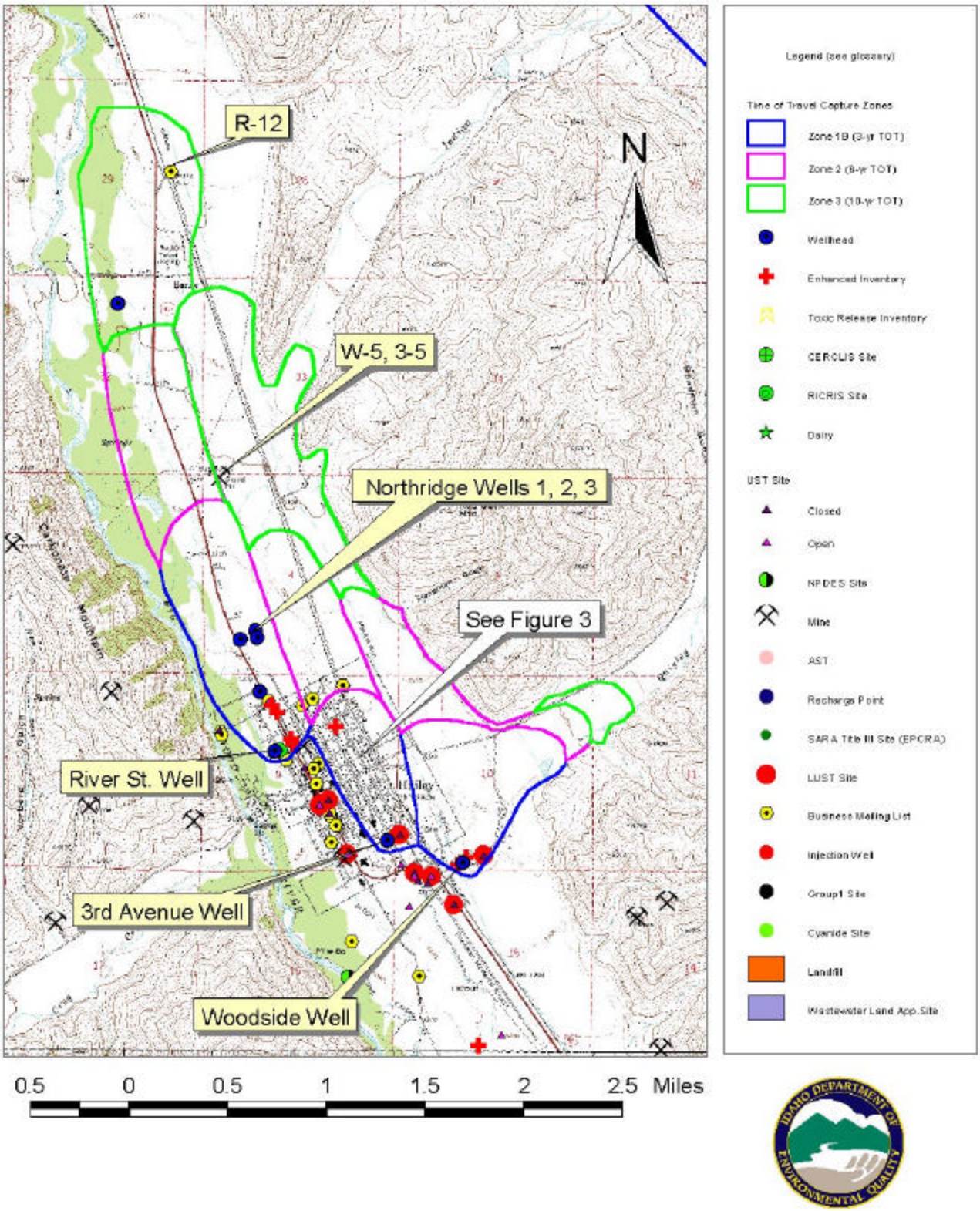


Figure 3. City of Hailey Well Delineations and Potential Contaminant Locations

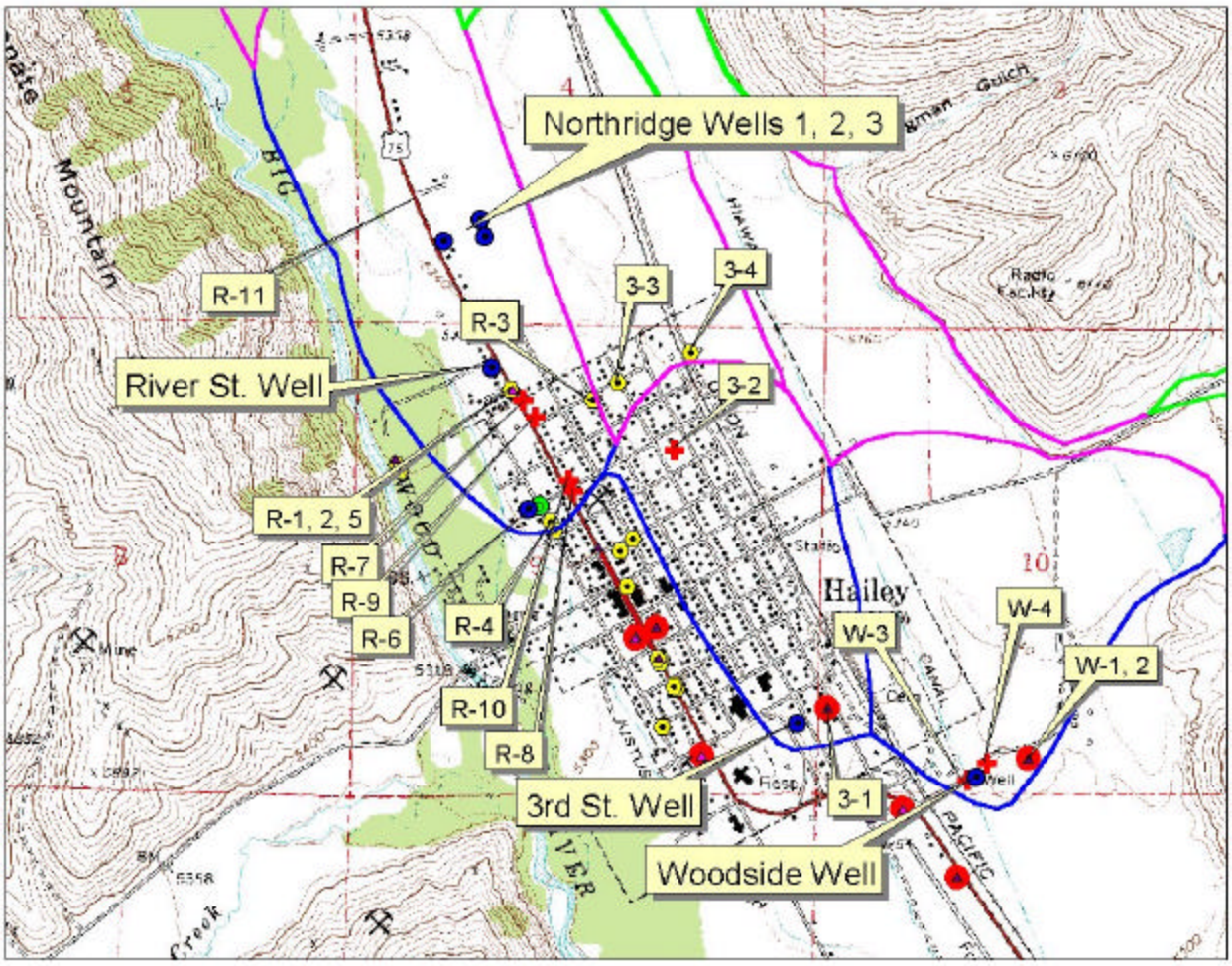


Table 2. City of Hailey Woodside Well, Potential Contaminant Inventory

SITE #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
W-1	LUST-complete	0-3	Database Search	VOC, SOC
W-2	LUST-incomplete	0-3	Database Search	VOC, SOC
W-3	Irrigation Well	0-3	Enhanced Inventory	IOC
W-4	City swimming pool	0-3	Enhanced Inventory	IOC
W-5	Gravel Pit	6-10	Database Search	IOC

[1] LUST = leaking underground storage tank
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Table 3. City of Hailey 3rd Avenue Well, Potential Contaminant Inventory

SITE #	Source Description[1]	TOT Zone[2] (years)	Source of Information	Potential Contaminants[3]
3-1	LUST-complete	0-3	Database Search	VOC, SOC
3-2	School Science Lab	0-3	Enhanced Inventory	IOC, VOC
3-3	Fire Department	3-6	Database Search	VOC, SOC
3-4	Woodworkers	3-6	Database Search	IOC, SOC
3-5	Gravel Pit	6-10	Database Search	IOC

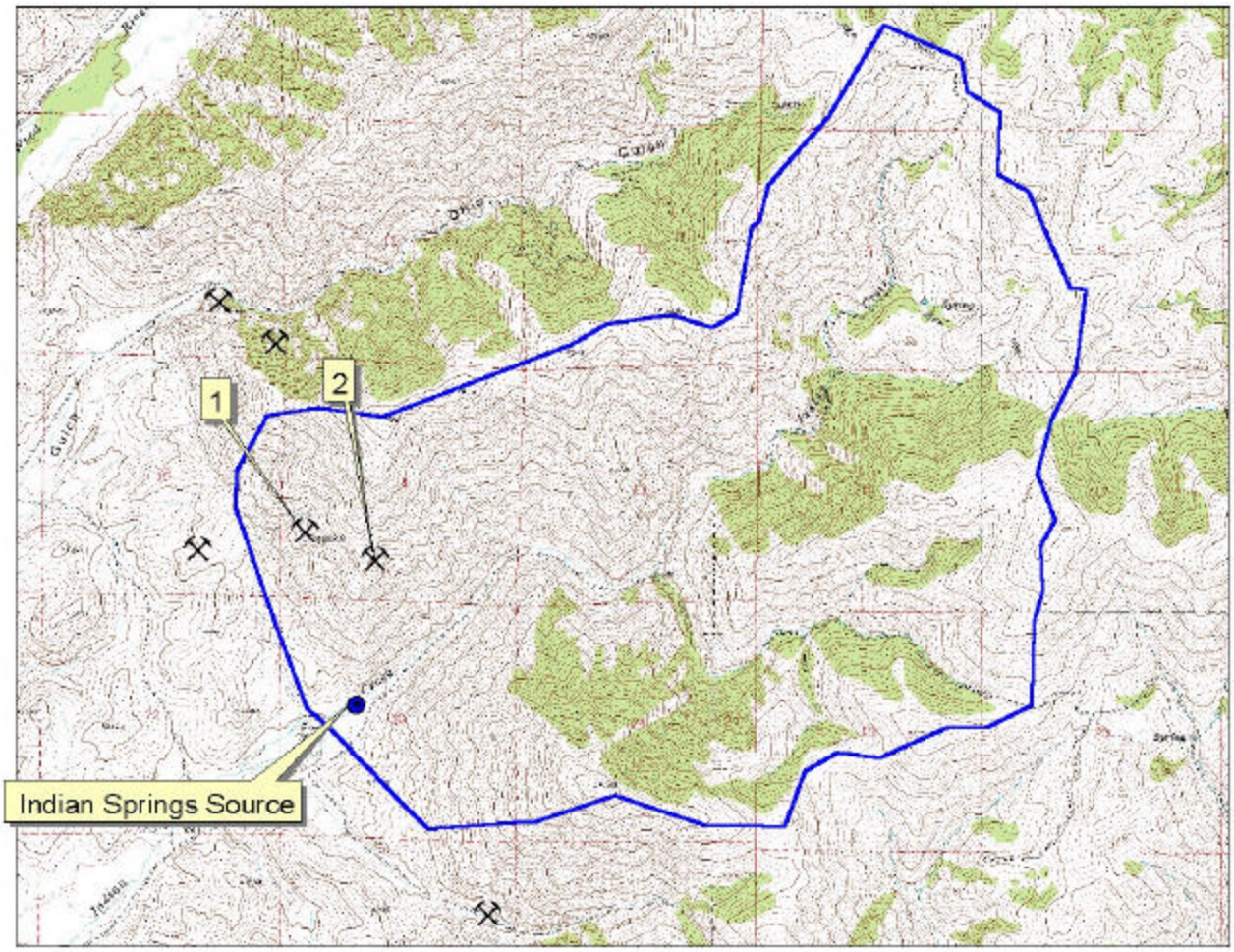
[1] LUST = leaking underground storage tank
[2] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[3] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Table 4. City of Hailey Indian Springs Source, Potential Contaminant Inventory

SITE #	Source Description	TOT Zone[1] (years)	Source of Information	Potential Contaminants[2]
1	Mine-Lead	0-3	Database Search	IOC, VOC, SOC
2	Mine-Lead	0-3	Database Search	IOC, VOC, SOC

[1] TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead
[2] IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Figure 4. Indian Springs Delineation and Potential Contaminant Locations



Section 3. Susceptibility Analyses

The susceptibility of the sources to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

Hydrologic sensitivity was high for the six wells in the City of Hailey drinking water system (see Table 6). Multiple factors increase the likelihood of movement of contaminants from the surface to the aquifer and lead to this high score. The soils within the delineation are classified as moderate to well drained. In all but the Woodside Well, the vadose zone (zone from land surface to the water table) is made of gravel. The depth to ground water is generally less than 20 feet below ground surface (bgs) and there is not at least 50 cumulative feet of low permeability layers to reduce the downward movement of contaminants.

The hydrologic sensitivity for the Indian Springs source was moderate because the soils are in the poor to moderate drainage class. Other factors that could reduce the downward movement of contaminants could not be assessed due to a lack of information.

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. The City of Hailey drinking water system consists of six wells and a spring that extract ground water for domestic, industrial, recreational, and commercial uses. The well system construction scores were moderate for all six wells. The Indian Springs source had a high construction score.

All six wells and the spring source had a Drinking Water Supply Report conducted in 1999. All six wells have well houses, cement floors, and casing raised at least 18 inches above grade to protect the wells from surface flooding. The wells also have adequately protected wellheads and surface seals. The Northridge Wells and the Woodside Well have gas chlorination water treatment systems. The Indian Springs reservoir outflow and reservoir bybass line are both chlorinated. Well logs were available for all the wells, though the River St. Well log did not contain sufficient casing and sealing information. When information was adequate, a determination was made as to whether the casing and annular seals had been extended into low permeability units and whether current public water system (PWS) construction standards were being met.

Information obtained from the various well logs is summarized in Table 5. Information gathered includes: 1) the depth of the well, 2) the casing diameter, thickness, depth, and formation type installed into, 3) water table depth, 4) screened or perforated intervals, 5) surface seal depth and formation type installed into, 6) year of construction, and 7) whether current Idaho Department of Water Resources (IDWR) construction standards are being met.

Table 5. Well Construction Summary Information

Well	Depth (ft)	Casing: diameter/ thickness	Casing: depth/ formation	Water Table Depth	Screened Interval (ft)	Surface seal: depth/formation	Drill Year	IDWR[1] Standards Met?
Woodside	**104**	**8/0.272**	**93/Sand**	**61**	**65-75**	**20/Hardpan**	**1976**	**No**
River St.	**150**	**16/0.312**	**150/NI[2]**	**20**	**50-147**	**NI**	**1965**	**No**
3rd Ave.	**198**	**20/NI**	**160/Gravel Cemented**	**24**	**65-80, 98-149**	**NI**	**1965**	**No**
Northridge A	**220**	**8/0.250**	**126/Gravel & Clay**	**18**	**93-183**	**20/Gravel**	**1996**	**No**
Northridge B	**194**	**8/0.250**	**161/Hard Mtn. Rock**	**13.5**	**100-160**	**100/Sand, gravel, clay**	**1997**	**No**
Northridge C	**199**	**8/0.250**	**175/Hard Mtn. Rock**	**13.1**	**100-172**	**100/Sand, gravel, clay**	**1997**	**No**

[1]IDWR = Idaho Department of Water Resources
[2]NI = No information available

System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. If the casing and annular seal both extend into a low permeability unit then the possibility of cross contamination from other aquifer layers is reduced and the system construction score goes down. In this case, none of the wells have both the casing and the annular seal in a low permeability unit. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. For the City of Hailey, the Northridge Wells B and C have the highest producing interval far enough below the water table. Though the Woodside Well, River St. Well, and 3rd Avenue Well may have met construction standards at the time of their installation, none of the City of Hailey wells meet current IDWR well construction standards.

The IDWR Well Construction Standards Rules (1993) require all public water systems (PWSs) follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the Recommended Standards for Water Works (1997) when constructed. Various aspects of the standards can be assessed from well logs. Table 1 of the Recommended Standards for Water Works (1997) states that 8-inch steel casing requires a thickness of 0.322 inches, and 16-inch and 20-inch casing requires a thickness of 0.375 inches. The Standards state that screens will be installed and have openings based on sieve analysis of the formation. All but the 3rd Avenue well use knife perforations. Standard 3.2.4.1 requires all PWSs to have yield and drawdown tests that last "24 hours or until stabilized drawdown has continued for six hours at 1.5 times" the design pumping rate. The Woodside and River St. Wells have too short of tests. The Northridge Wells do not have any test information on the well logs, though the City of Hailey provided information regarding the pumps installed in these wells.

Based on local and nearby well logs and previous studies of the area (Castelin and Winner, 1975; Frenzel, 1989; Brockway and Kahlown, 1994), the City of Hailey wells are completed in the fluvioglacial (river and glacier deposited) sediments comprised of fine to coarse-grained gravel that have considerable quantities of water available for use.

Potential Contaminant Source and Land Use

The wells rated moderate to low for inorganic chemicals (IOCs) (i.e. nitrate), synthetic organic chemicals (SOCs) (i.e. pesticides), and volatile organic chemicals (VOCs) (i.e. petroleum products). The wells rated low for microbial contaminants. Indian Springs rated low for all categories. The largest number of points for the wells came from the various potential contaminant locations and the nearby location of the Big Wood River and Highway 75. These sources could potentially contribute IOC, VOC, SOC, and microbial contaminants to the wells.

Final Susceptibility Ranking

IOC detections above drinking water standard Maximum Contaminant Levels (MCLs), a detection of total coliform bacteria or fecal coliform bacteria, or a detection of an SOC or VOC in a water chemistry test will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. The Woodside Well exceeded the MCL for the IOC chromium in August 1987. The River St. Well had a detection of the SOC Di(2-ethylhexyl)phthalate in July 1998. The Indian Springs source had a detection of the VOC tetrachlorethylene in October 1994. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0- to 3-year time of travel zone (Zone 1B) contribute greatly to the overall ranking. For the City of Hailey, all the wells and the Indian Springs source rate as moderate for all types of contamination.

Table 6. Summary of City of Hailey Susceptibility Evaluation

Well	Susceptibility Scores[1]									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Woodside	H	M	M	L	L	M	H*[2]	M	M	M
River St.	H	M	M	L	L	M	M	M	H*	M
3rd Avenue	H	L	L	L	L	M	M	M	M	M
Northridge A	H	L	M	L	L	M	M	M	M	M
Northridge B	H	L	M	L	L	M	M	M	M	M
Northridge C	H	L	M	L	L	M	M	M	M	M
Indian Springs	M	L	L	L	L	H	M	H*	M	M

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility
IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical
[2]H*: Denotes detection of VOC, SOC, or exceedance of an IOC Maximum Contaminant Level

Susceptibility Summary

There are no current, long term, recurring water chemistry problems in the drinking water sources. However, some of the sources have detected potential chemical problems during routine sampling. In July 1998, the River St. Well water had a detection of the SOC Di(2-ethylhexyl)phthalate. In October 1994, the Indian Springs source water had a detection of the VOC Tetrachlorethylene. In August 1987, the Woodside Well water exceeded the MCL for the IOC Chromium. Except for these occurrences, water chemistry tests have not detected volatile organic contaminants or synthetic organic contaminants in the well water. The IOCs barium, fluoride, nitrate, manganese, zinc, chromium, and mercury have been detected in the well water, but at levels below the MCLs for drinking water.

The wells in the City of Hailey system take water from the alluvial (river deposited) aquifer that comprises the valley floor. The valley floor is ½mile to 1-½miles in width. The depth of the valley fill in the area of the City of Hailey is approximately 100 to 150 feet below land surface (Castelin and Winner, 1975). The ground water and surface water systems are hydraulically connected and the hydraulic potential within the aquifer does not vary greatly. Recharge is primarily from precipitation, tributary valley underflow, and canal and stream seepage losses (Luttrell and Brockway, 1984). Historically, water quality problems have been attributed to private septic tank and municipal sewage treatment facilities, mining, construction, and agriculture (Castelin and Winner, 1975).

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For the City of Hailey, source water protection activities should focus on sustaining and implementing practices aimed at wellhead protection. Issues raised in the recent 1999 Drinking Water Supply Report have been addressed. Keeping the wellhead and surface seal up to standards will reduce the susceptibility ratings. Other practices aimed at reducing the movement of contaminants within the designated source water areas should be investigated. Any accidental spills in the Big Wood River or Highway 75 should be closely monitored. Disinfection practices should be maintained to prevent microbial contamination from becoming a concern. Though agricultural activities are currently not a major land use, the highly permeable nature of the soils and the movement rates of the water through the aquifer could make agricultural chemical leaching a concern. Most of the delineated areas are outside the direct jurisdiction of the City of Hailey. Partnerships with state and local agricultural agencies, county elected officials, and industry groups should be established and are critical to success. Due to the time involved with the movement of ground water, wellhead protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

Assistance

Public water supplies and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

City of Hailey	(208) 788-4221
Twin Falls Regional DEQ Office	(208) 736-2190
State DEQ Office	(208) 373-0502

Website: http://www2.state.id.us/deq

Water suppliers serving fewer than 10,000 persons may contact John Bokor, Idaho Rural Water Association, at 1-800-962-3257 for assistance with wellhead protection strategies.

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund≅ is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

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Attachment A

City of Hailey
Susceptibility Analysis
Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)

2) 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Scoring:

0 - 5 Low Susceptibility

6 - 12 Moderate Susceptibility

≥ 13 High Susceptibility

Ground Water Susceptibility Report Public Water System Name : HAILEY WATER AND SEWER Well# : 3RD AVE WELL

Public Water System Number 5070022 09/11/2000 1:46:51 PM

1. System Construction		SCORE
Drill Date	08/09/1965	
Driller Log Available	YES	
Sanitary Survey (if yes, indicate date of last survey)	YES	1999
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	YES	0
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	YES	0
	Total System Construction Score	4

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	NO	2
Vadose zone composed of gravel, fractured rock or unknown	YES	1
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	NO	2
	Total Hydrologic Score	6

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	URBAN/COMMERCIAL	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	2	2

Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	1	2	1	0
(Score = # Sources X 2) 8 Points Maximum		2	4	2	0
Sources of Class II or III leacheable contaminants or	YES	0	1	0	
4 Points Maximum		0	1	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		2	5	2	0

Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	YES	2	2	2	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		2	2	2	0

Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	1	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	

Total Potential Contaminant Source / Land Use Score - Zone III	1	1	1	0
Cumulative Potential Contaminant / Land Use Score	7	10	7	2
4. Final Susceptibility Source Score	11	12	11	11
5. Final Well Ranking	Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Report Public Water System Name : HAILEY WATER AND SEWER Well# : RIVER ST WELL

Public Water System Number 5070022 09/11/2000 1:48:01 PM

1. System Construction		SCORE
Drill Date	04/20/1965	
Driller Log Available	NO	
Sanitary Survey (if yes, indicate date of last survey)	YES	1999
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	YES	0
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	YES	0
	Total System Construction Score	4

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	NO	2
Vadose zone composed of gravel, fractured rock or unknown	YES	1
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	NO	2
	Total Hydrologic Score	6

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	URBAN/COMMERCIAL	2	2	2	2
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	NO	YES	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		2	2	2	2
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	5	9	6	1
(Score = # Sources X 2) 8 Points Maximum		8	8	8	2
Sources of Class II or III leacheable contaminants or	YES	0	1	0	
4 Points Maximum		0	1	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		8	9	8	2
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		0	0	0	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	YES	1	1	0	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		1	1	0	0

Cumulative Potential Contaminant / Land Use Score	11	12	10	4
4. Final Susceptibility Source Score	12	12	12	12
5. Final Well Ranking	Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Report Public Water System Name : HAILEY WATER AND SEWER Well# : WOODSIDE WELL

Public Water System Number 5070022 09/11/2000 1:48:16 PM

1. System Construction		SCORE				
Drill Date	12/31/1976					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	1999				
Well meets IDWR construction standards	NO	1				
Wellhead and surface seal maintained	YES	0				
Casing and annular seal extend to low permeability unit	NO	2				
Highest production 100 feet below static water level	NO	1				
Well located outside the 100 year flood plain	YES	0				
	Total System Construction Score	4				
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	NO	2				
Vadose zone composed of gravel, fractured rock or unknown	NO	0				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	NO	2				
	Total Hydrologic Score	5				
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score	
Land Use Zone 1A	IRRIGATED PASTURE	1	1	1	1	
Farm chemical use high	NO	0	0	0		
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	YES	NO	NO	NO	
	Total Potential Contaminant Source/Land Use Score - Zone 1A	1	1	1	1	
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES	2	2	2	0	
(Score = # Sources X 2) 8 Points Maximum		4	4	4	0	
Sources of Class II or III leacheable contaminants or	YES	2	2	0		
4 Points Maximum		2	2	0		
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0	
Land use Zone 1B	25 to 50% Irrigated Agricultural Land	2	2	2	2	
	Total Potential Contaminant Source / Land Use Score - Zone 1B	8	8	6	2	
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	NO	0	0	0		
Sources of Class II or III leacheable contaminants or	YES	1	0	0		
Land Use Zone II	Greater Than 50% Irrigated Agricultural Land	2	2	2		
	Potential Contaminant Source / Land Use Score - Zone II	3	2	2	0	
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES	1	1	1		
Sources of Class II or III leacheable contaminants or	NO	0	0	0		
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0		
	Total Potential Contaminant Source / Land Use Score - Zone III	1	1	1	0	

Cumulative Potential Contaminant / Land Use Score	13	12	10	3
4. Final Susceptibility Source Score	12	11	11	10
5. Final Well Ranking	Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Report Public Water System Name : HAILEY WATER AND SEWER Well# : NORTH RIDGE A

Public Water System Number 5070022 09/11/2000 1:47:21 PM

1. System Construction		SCORE				
Drill Date	05/30/1996					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	1999				
Well meets IDWR construction standards	NO	1				
Wellhead and surface seal maintained	YES	0				
Casing and annular seal extend to low permeability unit	NO	2				
Highest production 100 feet below static water level	NO	1				
Well located outside the 100 year flood plain	YES	0				
Total System Construction Score		4				
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	NO	2				
Vadose zone composed of gravel, fractured rock or unknown	YES	1				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	NO	2				
Total Hydrologic Score		6				
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score	
Land Use Zone 1A	DRYLAND AGRICULTURE	1	1	1	1	
Farm chemical use high	NO	0	0	0		
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO	
Total Potential Contaminant Source/Land Use Score - Zone 1A		1	1	1	1	
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES	5	9	6	1	
(Score = # Sources X 2) 8 Points Maximum		8	8	8	2	
Sources of Class II or III leacheable contaminants or	YES	0	1	0		
4 Points Maximum		0	1	0		
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0	
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone 1B		8	9	8	2	
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	NO	0	0	0		
Sources of Class II or III leacheable contaminants or	NO	0	0	0		
Land Use Zone II	Less than 25% Agricultural Land	0	0	0		
Potential Contaminant Source / Land Use Score - Zone II		0	0	0	0	
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES	1	1	0		
Sources of Class II or III leacheable contaminants or	NO	0	0	0		
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0		
Total Potential Contaminant Source / Land Use Score - Zone III		1	1	0	0	

Cumulative Potential Contaminant / Land Use Score	10	11	9	3
4. Final Susceptibility Source Score	12	12	12	11
5. Final Well Ranking	Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Report Public Water System Name : HAILEY WATER AND SEWER Well# : NORTH RIDGE B

Public Water System Number 5070022 09/11/2000 1:47:32 PM

1. System Construction		SCORE				
Drill Date	06/19/1997					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	1999				
Well meets IDWR construction standards	NO	1				
Wellhead and surface seal maintained	YES	0				
Casing and annular seal extend to low permeability unit	NO	2				
Highest production 100 feet below static water level	YES	0				
Well located outside the 100 year flood plain	YES	0				
	Total System Construction Score	3				
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	NO	2				
Vadose zone composed of gravel, fractured rock or unknown	YES	1				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	NO	2				
	Total Hydrologic Score	6				
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score	
Land Use Zone 1A	DRYLAND AGRICULTURE	1	1	1	1	
Farm chemical use high	NO	0	0	0		
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO	
	Total Potential Contaminant Source/Land Use Score - Zone 1A	1	1	1	1	
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES	5	9	6	1	
(Score = # Sources X 2) 8 Points Maximum		8	8	8	2	
Sources of Class II or III leacheable contaminants or	YES	0	1	0		
4 Points Maximum		0	1	0		
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0	
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0	
	Total Potential Contaminant Source / Land Use Score - Zone 1B	8	9	8	2	
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	NO	0	0	0		
Sources of Class II or III leacheable contaminants or	NO	0	0	0		
Land Use Zone II	Less than 25% Agricultural Land	0	0	0		
	Potential Contaminant Source / Land Use Score - Zone II	0	0	0	0	
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES	1	1	0		
Sources of Class II or III leacheable contaminants or	NO	0	0	0		
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0		
	Total Potential Contaminant Source / Land Use Score - Zone III	1	1	0	0	

Cumulative Potential Contaminant / Land Use Score	10	11	9	3
4. Final Susceptibility Source Score	11	11	11	10
5. Final Well Ranking	Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Report Public Water System Name : HAILEY WATER AND SEWER Well# : NORTH RIDGE C

Public Water System Number 5070022 09/11/2000 1:47:49 PM

1. System Construction		SCORE				
Drill Date	06/25/1997					
Driller Log Available	YES					
Sanitary Survey (if yes, indicate date of last survey)	YES	1999				
Well meets IDWR construction standards	NO	1				
Wellhead and surface seal maintained	YES	0				
Casing and annular seal extend to low permeability unit	NO	2				
Highest production 100 feet below static water level	YES	0				
Well located outside the 100 year flood plain	YES	0				
	Total System Construction Score	3				
2. Hydrologic Sensitivity						
Soils are poorly to moderately drained	NO	2				
Vadose zone composed of gravel, fractured rock or unknown	YES	1				
Depth to first water > 300 feet	NO	1				
Aquitard present with > 50 feet cumulative thickness	NO	2				
	Total Hydrologic Score	6				
3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score	
Land Use Zone 1A	DRYLAND AGRICULTURE	1	1	1	1	
Farm chemical use high	NO	0	0	0		
IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO	NO	
	Total Potential Contaminant Source/Land Use Score - Zone 1A	1	1	1	1	
Potential Contaminant / Land Use - ZONE 1B						
Contaminant sources present (Number of Sources)	YES	5	9	6	1	
(Score = # Sources X 2) 8 Points Maximum		8	8	8	2	
Sources of Class II or III leacheable contaminants or	YES	0	1	0		
4 Points Maximum		0	1	0		
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0	
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0	
	Total Potential Contaminant Source / Land Use Score - Zone 1B	8	9	8	2	
Potential Contaminant / Land Use - ZONE II						
Contaminant Sources Present	NO	0	0	0		
Sources of Class II or III leacheable contaminants or	NO	0	0	0		
Land Use Zone II	Less than 25% Agricultural Land	0	0	0		
	Potential Contaminant Source / Land Use Score - Zone II	0	0	0	0	
Potential Contaminant / Land Use - ZONE III						
Contaminant Source Present	YES	1	1	0		
Sources of Class II or III leacheable contaminants or	NO	0	0	0		
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0		
	Total Potential Contaminant Source / Land Use Score - Zone III	1	1	0	0	

Cumulative Potential Contaminant / Land Use Score	10	11	9	3
4. Final Susceptibility Source Score	11	11	11	10
5. Final Well Ranking	Moderate	Moderate	Moderate	Moderate

Ground Water Susceptibility Report Public Water System Name : HAILEY WATER AND SEWER Well# : INDIAN SPRINGS

Public Water System Number 5070022 09/11/2000 1:47:07 PM

1. System Construction		SCORE
Drill Date		
Driller Log Available	NO	
Sanitary Survey (if yes, indicate date of last survey)	YES	1999
Well meets IDWR construction standards	NO	1
Wellhead and surface seal maintained	YES	0
Casing and annular seal extend to low permeability unit	NO	2
Highest production 100 feet below static water level	NO	1
Well located outside the 100 year flood plain	NO	1
	Total System Construction Score	5

2. Hydrologic Sensitivity		
Soils are poorly to moderately drained	YES	0
Vadose zone composed of gravel, fractured rock or unknown	YES	1
Depth to first water > 300 feet	NO	1
Aquitard present with > 50 feet cumulative thickness	NO	2
	Total Hydrologic Score	4

3. Potential Contaminant / Land Use - ZONE 1A		IOC Score	VOC Score	SOC Score	Microbial Score
Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES	NO	YES	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		0	0	0	0
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	2	2	2	0
(Score = # Sources X 2) 8 Points Maximum		4	4	4	0
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
4 Points Maximum		0	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		4	4	4	0
Potential Contaminant / Land Use - ZONE II					
Contaminant Sources Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Land Use Zone II	Less than 25% Agricultural Land	0	0	0	
Potential Contaminant Source / Land Use Score - Zone II		0	0	0	0
Potential Contaminant / Land Use - ZONE III					
Contaminant Source Present	NO	0	0	0	
Sources of Class II or III leacheable contaminants or	NO	0	0	0	
Is there irrigated agricultural lands that occupy > 50% of	NO	0	0	0	
Total Potential Contaminant Source / Land Use Score - Zone III		0	0	0	0

Cumulative Potential Contaminant / Land Use Score	4	4	4	0
4. Final Susceptibility Source Score	10	10	10	9
5. Final Well Ranking	Moderate	Moderate	Moderate	Moderate